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CONTENTS

Hatch—Nameability in taxonomy 141
Chermock—Migration in Ascia monuste phileta 144
Rehn—The post-oak locust in New Jersey in 1944 147
Chamberlin—Some millipeds of Georgia 149
Knowlton—A new sagebrush aphid 153
Frota-Pessoa—Drosophila mallochi, nom. nov. 155
Wright—A note on Hellgrammites..... 156
Staebler and Buren—Aedes tortilis in the U. S. 157
Notes and News in Entomology
The Adams collection of Odonata 158
Personal 158
Entomological Literature 159
Review—British Butterflies 166

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Nameability in Taxonomy

By MELVILLE H. HATCH, University of Washington, Seattle

The modern problem of what to name and what not to name in plant and animal classification is a product of evolutionary biology. Previous to Darwin naturalists had sought simply for samples of originally created species. Darwin removed the absolutes of his predecessors. The notion that only individuals exist presented taxonomists with a sheer relativity, that since no two individuals are precisely the same, could end logically only with attaching a separate name to each specimen. The complex systems of varieties, color varieties, formae, abberations, etc., such as are found in portions of the lepidopterological and coleopterological literature are the result.

The problem of nameability cannot be resolved primarily by reference to the natural objects to be named. It can be solved only by erecting a set of assumptions as to what, in the light of biological phenomena being such as they are, it is useful and expedient to name. Different naming practices can be compared and criticized only by making explicit and contrasting the diverse assumptions on which they are more or less unconsciously based.

Linnaeus derived his practice from the assumption that the organic world has arisen as the result of a series of discrete creative events, and that all the individuals derived from a single such creative event should receive the same specific name. Biologists no longer accept the basic Linnaean assumption and consequently must seek another basis for their nomenclature.

Relativists like myself * and others who have espoused the

* HATCH, Jour. N. Y. Ent. Soc., XXXV, 1927, p. 341; XLVIII, 1940, pp. 235–244.

extensive naming of color forms and aberrations have assumed mere distinguishability as the basis of naming types of living things. I am now convinced that such a practice can end only in the *reductio ad absurdum* of naming each individual specimen.

The alternative to taxonomic "relativism" may be termed "populationalism." To avoid the pitfall of relativism, to account for the circumstance that while no two individuals are the same some resemble each other more than they do others, above all to account for the facts of ecology, taxonomists are led to interpret their individual specimens in terms of "populations." A "population" is a dynamic system. In its entirety (i.e., in respect to all of the members that constitute it) no population can ever be investigated, but a study of individual specimens (which are all we can ever investigate) does give valid information about the population or populations that they represent. In the light of these considerations, I propose that we explicitly assume that *only populations merit specific and infraspecific names,* not because other classes of specimens may not be recognizable but because in the present state of biological knowledge, the population is the first system above the level of the individual to possess biological efficacy.

There is nothing either new or startling about this position. It is the implied position of most modern taxonomists who have not believed in color-variety-naming. It has been the position in regard to species and subspecies of color-variety-namers like myself, who have merely desired to extend "populational" nomenclature to non-populational classes. I am now convinced, however, that such an extension is not desirable and that such classes should be handled by a nomenclature that is entirely independent of and not continuous with that used to designate populational units.

So delimited, the problems of populational taxonomy are extremely complex. Populations vary as do many other natural systems. Some are large; some are small. They may be spatially sharply delimited (species) or they may grade into one another geographically or ecologically (subspecies). Temporally they may intergrade likewise, and the paleontologist can never rid himself of the suspicion that, if he had enough data,

all his "species" would grade together and his taxonomy would become one of working outward from points on a continuous series rather than one of working within limits of variation, as is now the case. Furthermore, populational taxonomy is rendered difficult by the varying amounts of data available on different populations. Some of these difficulties were treated by the author some years ago in a paper in the American Naturalist.*

Perhaps it may be no more than the over-enthusiasm of a recent convert, but I suggest that the policy advocated above, that only populations merit specific and infraspecific names, be implemented by resolution of biological and entomological societies, by the refusal of the editors of scientific journals to publish descriptions of undescribed non-populational categories to which Latin name are attached, and eventually by amending the International Code of Zoological Nomenclature.

I do not in the least suggest that studies in infra-populational variation be discouraged, but merely that they be accompanied by a nomenclature (using letters, numbers, formulae, non-Latin names, etc.) that is independent of populational nomenclature.

Finally, there is the mass of infra-populational names already present in the literature. I suggest that such names be continued as nomenclatorially on a par with other trivial names, but that every effort be made in accordance with the plan set forth above to reduce or eliminate the formation of such names in the future. Authors who are interested only in populational units will treat infra-populational names as absolute synonyms. Authors who are interested in infra-populational variation, will probably continue to use such names where they are already in existence, since it would usually seem to be unwise to drop already extant names in favor of designations of another sort, as by lettering or numbering. Where extant names are used in an infra-populational sense, they could be placed in quotation marks, e.g., var. *"albinus* J. Doe." A newly discovered albino variety, however, would not be given a Latin name but otherwise designated as var. A: albinistic.

* "The Logical Basis of the Species Concept," Amer. Nat. LXXV, 1941, pp. 193–212.

Migration in Ascia monuste phileta (Lepidoptera, Pieridae)

By Ralph L. Chermock

Ascia monuste phileta (Fabricius) [1] is found throughout the year in southern Florida. Its frequency is characterized by population waves (Term after Timofeeff-Ressovsky, 1939), the high peaks usually occurring in January–February and June–July. The population size decreases between these periods, in some years almost completely disappearing. Occasionally the peaks of high population concentration far exceed the normal range, and huge numbers of adult specimens occur. The author, in February of 1943, observed one of these *population swarms* in the Miami area. On a half acre of land covered with Spanish needle (*Bidens pilosa*, L.), a favorite food plant of the adults, over 500 freshly emerged specimens of *A.m.phileta* could be observed feeding at one time. During normal high peaks, 50 to 60 specimens are seen here. This situation was duplicated in other localities in Dade County. Within a few days, specimens of this subspecies in a normal ratio of males and females could be seen flying northward along the city streets and through the pine-palmetto country. They were undoubtedly in the process of migration.

In the summer of 1945, the author was collecting on Key Largo and again observed a population swarm. However, in the Miami area simultaneously, only the normal population peak existed. During the following week, numerous specimens of *A.m.phileta* were again seen heading north along the streets in Miami. Most of these specimens were slightly flown. This same situation was observed in the summer of 1943, when a relatively large migration of this subspecies followed the eastern coast line north from the keys, after a population swarm on Key Largo and Upper Matecumbe Key. Evidently, there was a correlation between the abnormally high peak of population concentration which the author is designating as a population swarm,

[1] This is the name applied to the Floridian subspecies of *Ascia monuste* (see Comstock, 1943).

and the incidence of migration of *A.m.phileta*. How can this correlation be explained?

First, we might attempt to find an explanation for a population swarm. The various *Cruciferae* which comprise the food plant of the larval stage of this butterfly are abundant and could support more than the normal larval population. If ecological conditions are satisfactory, it can readily be understood how an extreme increase beyond the normal population size can result in one generation.

Although the larval stage can be supported by the environment, a biological pressure is exerted on the increased number of adults. More specimens are found flying in a given area; and the limited number of flowers on which the adults feed in the area immediately surrounding the location of the larval food plant, is insufficient to support the adult population. As a result, they start moving to other areas in search for a suitable environment for their sustenance. Probably other biological factors exist which encourage this migration, but the need for food is unquestionably an important one.

Localities abounding in flowers used as food by the adult *A.m.phileta* are scattered and surprisingly scarce in south Florida. Population swarms of this species might also be present in these areas or at least the normal high peak of the population wave. Consequently, these localities in turn furnish a state of biological pressure on the migrants, which results in the continuation and possible supplementing of the migration. As the limits of the species range are reached by the migrants, the factors which initially started the migration are replaced by biological pressures exerted by a foreign environment. This could explain the continuation of the migration of this butterfly along the Atlantic seaboard, far out of the normal breeding limits of the species.

Ascia monuste cleomes (Boisduval & LeConte) was probably established as the result of one of these northern migrations, in which a few specimens were sufficiently adapted to the new environment to survive. Its geographic isolation from the parental stock, along with a new combination of environmental pres-

sures, gave rise to characters sufficiently distinct to merit subspecific designation. However, in the small population existant, degenerative evolution has evidently taken place which has probably led to its extinction (Principle after Wright, 1939), as indicated by the lack of recent records. In another species of butterfly found in the south, *Papilio cresphontes cresphontes* (Cramer), a similar migrant form has become established in central Pennsylvania which probably has adapted itself through the interplay of natural selection and genic variation to its environment, and is increasing in numbers and distribution. It also has developed diagnostic characters sufficient to separate it from the parental stock and can be considered a subspecies, *Papilio cresphontes pennsylvanicus* (F. H. Chermock & R. L. Chermock, 1945).

Summary

A possible explanation for the migration of *Ascia monuste phileta* is based on an increase in numbers of adult specimens beyond the normal high peaks of the population waves, which condition may be designated as a "Population swarm." This results in biological pressure being exerted on the adults, one element of which is the limited supply of food, thereby giving rise to migration. This process is continuous throughout the extent of the migration, although the character of the biological pressure changes with the change of environment at and beyond the limits of the normal distribution of the species. These migrating forms can develop into distinct subspecies if they are able to become established far beyond their normal ranges, if genetically they can develop characters adapting themselves to the new environment through selection, and because of their isolation.

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The Post-Oak Locust (Dendrotettix quercus) at Mount Misery, New Jersey, in 1944 (Orthoptera, Acrididae)

By JAMES A. G. REHN, Academy of Natural Sciences of Philadelphia

In 1938 John W. H. Rehn and I [1] presented a series of observations on a serious outbreak of the Post-Oak Locust (*Dendrotettix quercus*) in the Mount Misery section of New Jersey, on the Ocean-Burlington County line. In the same paper we reviewed our knowledge of the occurrence of this potentially destructive species in the eastern United States, and also discussed its dimorphism in wing-length.

In a letter under date of July 6, 1944, Dr. Emlen P. Darlington, to whose interest and cooperation we owed the opportunity to study the 1936 outbreak, advised me that in company with Supervisor J. P. Allen, of the Lebanon State Forest, he had made a preliminary survey of a *Dendrotettix* infestation in that forest, and that he was mailing me some material then taken. He said the greatest infestation was in the neighborhood of that of 1936. On July 26 I visited the outbreak area with Dr. Darlington and Supervisor Allen, travelling approximately eight miles within the state forest boundaries.

The general area of infestation was found to be essentially the same as in 1936, both from our observations then and Supervisor Allen's more regular and critical check-ups in the course of his periodic inspections. The occurrences were spotty, apparently governed by a preference for chestnut oak and similar species, but avoiding scrub oaks. The injury already done was very great in a number of places, trees and some saplings being almost completely defoliated, and the ground conspicuously covered with droppings. The insects by that date, however, were not abundant, being locally common but in no degree as numerous as on August 1, 1936. Some were mating, very few climbing upwards as was so noticeable in 1936, and others, particularly females, were resting quietly on

[1] Trans. Amer. Entom. Soc., LXIV, pp. 79–95, pls. V–VI.

the bark of pines distributed through the oaks. All seen were brachypterous except for three macropterous individuals, two of which, a male and a female, found far apart, were captured.

There was no ocular evidence of oviposition, and none of the more than a score of females taken and eviscerated had as yet any very considerable number of fully formed eggs. Two maggots, presumably of *Sarcophaga atlanis* Aldrich,[2] were found in my cyanide bottles when the sixty or so collected specimens were dumped, and one female, when eviscerated, contained a single maggot.

Some weeks after my 1944 visit to the Mt. Misery area a letter from Dr. Darlington (dated August 19) advised me that chestnut oaks and other oaks "along the old Browns Mills-Pointville road at the Fort Dix boundary, about one mile north of Browns Mills" had had their foliage denuded. No locusts were found then, "but the work had all the evidence of *Dendrotettix quercus* infestation, comparable to that at the Lebanon State Forest." Further Dr. Darlington added, "the trees which were three-fourths or more denuded covered about an acre . . . with some scattered areas in the borders." This indicated an additional 1944 outbreak area approximately six miles northwest of those within the Lebanon State Forest from which our observations had chiefly been drawn.

Whether the periodic outbreaks of *Dendrotettix* in the New Jersey pine-barrens are regularly cyclic, which seems less probable, or are due to the relative absence of inhibiting control factors which we as yet do not understand, remains to be determined. Certainly parasitism plays a definite part in the picture, as past evidence shows. The injury this species inflicts in its mass outbreaks on the more desirable species of oaks in the pine-barrens is serious, even if over a limited area, as the defoliation is so severe it is often followed by the death of the trees involved.

I wish to thank Supervisor Allen and Dr. Darlington for their kindness in calling this outbreak to my attention, and also for their assistance at the time of my visit on July 26.

[2] See Rehn and Rehn, idem, p. 88.

On Some Millipeds of Georgia

By Ralph V. Chamberlin, University of Utah

In a small collection of millipeds made in Georgia by P. W. Fattig of Emory University are representatives of the three new species and the several previously known species listed below.

Scoterpes austrinus **nudus**, new variety

A number of specimens taken September 28, 1944, four miles south of Kingston in Saltpeter Cave.

Separated from *S. austrinus* Loomis, sensu str., as represented by the types from Manitou Cave, near Fort Payne, Alabama, in lacking terminal claws on the ninth legs of the male.

Spirostrephon lactarium (Say)

One female, presumably this species, also taken in Saltpeter Cave, on September 28, 1944.

Spirobolus marginatus (Say)

Two females referred to this species, one taken at Boston on April 14, 1939, and one on Stone Mountain on August 2, 1936.

Saiulus atlantus, new species

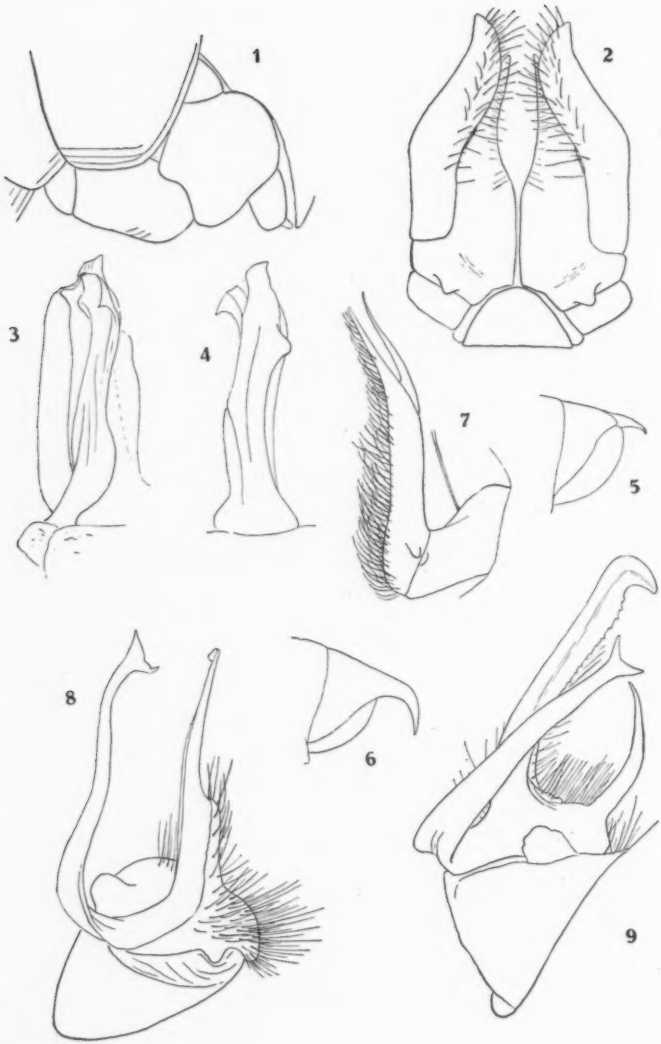
In general structure of the male gonopods, probably nearest to *S. fumans,* occurring in Tennessee, although these differ clearly in details, such as in the shorter inner division or coxa of the anterior pair, the form of the outer or second division, and the form of the posterior pair. See further figures 2, 3, and 4.

The form of the collum, stipes of the mandible, etc., of the male as shown in figure 1.

At once distinguished from *S. fumans* in the larger abruptly bent mucro of the last tergite. (See figures 5 and 6.) This is somewhat shorter in the female than in the male so far as the types show.

Number of segments in the male holotype, 53.

Diameter, 2.3 mm.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Dorsum of chestnut cast, with no median dark line, some lighter spots in transverse series on each side; the usual lateral series of black spots (repugnatorial glands); below the dark spots the sides are lighter, more or less yellowish in color; feet light yellow.

Locality: GEORGIA: Atlanta. A male and female taken December 1, and one female December 2, 1945.

Mimuloria georgiana (Bollman)

Two males and a female taken on Stone Mountain August 6, 1936.

Epeloria atlanta, new species

A much smaller form than the generotype, *E. talapoosa* Chamb., the only other known species of the genus, from which it also differs in the details of the gonopods of the male, such as in the more divergent apical prongs, as shown in the figure.

The dorsum in the male holotype is blackish from a network of lines which are across the posterior part of the metazonite and merge into a solid cross band, prozonite also with a dusky

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EXPLANATION OF FIGURES

Saiulus atlantus, new species

Fig. 1. Lateral view of lower end of collum, mandible, and first legs of male.
Fig. 2. Anterior gonopods (coleopods) of male, anterior view.
Fig. 3. Left posterior gonopod, submesal view.
Fig. 4. The same, subectal view.
Fig. 6. Posterior end of male, lateral view, showing form of cauda.

Saiulus fumans, Chamberlin

Fig. 5. Caudal end, lateral view.

Epeloria atlanta, new species

Fig. 7. Left gonopod of male, ectoventral view.

Pachydesmus denticulatus, new species

Fig. 8. Right gonopod of male, ventral aspect.
Fig. 9. Left gonopod of male, subanterior view.

network or band over light brown; keels orange or reddish, a narrow band of same color more or less evident across caudal border of metazonites. Legs yellowish. The female allotype is not in full color and does not show the dark coloration on dorsum.

Length, about 34 mm., width, 6.5 mm.

Locality: GEORGIA: Atlanta, December 1, 1945. A male (holotype) and female (allotype).

Pachydesmus denticulatus, new species

A large form in which the dorsum, in the preserved types, is dull brown with the outer part of keels yellow.

Agreeing most closely in general structure with *P. retrorsus* Chamberlin, but differing in the details of the male gonopods. In these the seminiferous blade is similar in general form but has the upper margin finely dentate as shown in the figure. The other branch is less divergent, running subparallel with the seminiferous blade, and is notably more slender and longer; similarly furcate distally, but the two prongs proportionately much shorter. See further figures 8 and 9.

The sternites are without spinous processes, but on the posterior segments present a low, median elevation somewhat compressed in the cepholocaudal direction and lying between the posterior legs.

First joint of legs not spined.

Length of male *holotype,* 47 mm.; width, 12.5 mm. A male *paratype* is somewhat wider, 13.2 mm.

Locality: GEORGIA: Atlanta. Male holotype, taken April 27, 1939, a male paratype November 4, 1941, another paratype, October 21, 1942, and the female allotype May 26, 1943. All were taken by P. W. Fattig.

Euryurus erythropygus (Brandt)

One female referred to this species was taken at Atlanta on April 4, 1939.

A New Sagebrush Aphid (Homoptera)

By GEORGE F. KNOWLTON,
Utah State Agricultural College, Logan

Artemisias or sages are important browse plants in Utah and over much of the western United States. Aphids frequently infest the sages, sometimes to a damaging extent. Among *Epameibaphis* aphid material examined recently was found an apparently undescribed species, here described as new. Distributional notes on a few additional *Artemisia*-infesting aphids also are included.

KEY TO APTEROUS VIVIPARA

1. Cornicles black ..... *atricornis* G.–P.
   Cornicles pale or at most, dusky 2
2. Antennal III lacking sensoria ..... *utahensis* K.–S.
   Antennal III of aptera possessing sensoria 3
3. Antennal III with 1 to 4 sensoria ..... *frigidae* (Oest.)
   Antennal III with 5 or more sensoria ..... *thornleyi* n. sp.

Epameibaphis thornleyi n. sp.

Apterous vivipara: Color pale; appendages pale, to dusky on distal portions; body 1.37 to 1.45 mm. long; width across abdomen .71 to .79; through eyes, .395 to .42 with ocular tubercles absent or weakly developed; vertex broadly rounded to flattened, with conspicuous hairs .075 to .079 mm. long and flattened at ends; antennal III, .28 to .3 mm. long with 5 to 6 sensoria; IV, .19 to .238; V, .182 to .205; VI, .11 to .125 plus .38 + (?) (broken); rostrum reaches abdomen; rostral IV + V, .189 to .2 mm. long and slenderly pointed; hind tibiae .79; hind tarsi .126, dusky; cornicles pale to somewhat dusky, .474 to .491, imbricated to knob-shaped apex; cauda .142 long, blunt at apex, pale, with 2 or 3 pairs of lateral hairs.

Taxonomy: This species runs to *Epameibaphis frigidae* (Oestlung) in Knowlton and Smith's key (Proc. Ent. Soc. Wash. 38: 89, 1936), from which it differs in being larger in size, possessing more sensoria on antennal III, and longer rostral IV + V.

Collection: This material was collected on *Artemisia tridentata* in Shoshone National Forest, Wyoming, September 11, 1941 (G. F. Knowlton), while on a field trip with Mr. F. H. Thornley, in whose honor the species is named. Type in the collection of the writer.

Epameibaphis atricornis G.–P. A specimen was found in a rockwren's stomach, collected at Dolomite, Utah, September 28, 1941 (Knowlton). Also collected on *Artemisia,* usually *tridentata,* at Leeds, Utah (Knowlton); Snowwater Lake, Nevada, August 20, 1943 (Knowlton); Lavina, Montana, June 2 and July 2, 1942 (H. F. Thornley); Big Horn in May, and Acton, July 1942, in Montana (Thornley); Helena, Montana, August 2, 1944 (Knowlton); Roundup, Montana, May 26, 1942 (Thornley).

E. frigidae (Oestlund) on *Artemisia tridentata* at Trout Creek, Utah, August 8, 1945 (Knowlton); Helena and Lake Helena, Montana, August 3, 1944 (Knowlton); on *Artemisia* at Flagstaff, Arizona, September 23, 1944 (Knowlton); White Valley, Millard County, Utah, May 19, 1940 (R. W. Fautin).

E. utahensis K.–S. Collected on *Artemisia* at Zion National Park, Utah, September 7, 1943 (Knowlton).

Aphis artemisicola Williams on *Artemisia tridentata* at Vernal and Weber Canyon, Utah; North Powder, Oregon, June 17, 1939; Carson City, June 30, Battle Mountain, Carson City and Wells, Nevada, July 1, 1939; Gibson and Ryegate, Montana, August 14, 1942 (H. F. Thornley).

A. canae Williams on *Artemisia tridentata* at Preston, Idaho, June, 1933; Gallatin, Montana, July 15, 1936.

A. oregonensis Wilson on *Artemisia tridentata* at Gallatin, Montana and Yellowstone National Park, Wyoming, July 15, 1936.

Macrosiphum artemisophilus K.–A. on *Artemisia* at Roundup, Montana, June 15, 1942 (H. F. Thornley).

M. coweni (Hunter) on *Artemisia tridentata* at Snowwater Lake, Nevada, August 20, 1943; foothills of Raft River Mountains, Utah, May 24, 1930; Boise, Idaho, June 16, 1939; Flagstaff, Arizona, September 23, 1944; Grand Canyon of the Snake River, Wyoming, September 11, 1941.

M. filifoliae G.–P. on *Artemisia filifoliae* at Mt. Nebo, July 12, and Beaver Mountain, July 10, 1942, in Utah; Judith Gap, June 18, and Roundup, May 26, 1942, in Montana (H. F. Thornley).

M. frigidae Oestlund, on *Artemisia frigidae,* Teton Pass, Wyoming, September 13, 1941.

M. frigidicola (G.–P.) on *Artemisia* at Acton, Montana, July 1, 1942 (H. F. Thornley).

M. jonesi G.–P. on *Artemisia* at Steamboat Springs, Colorado, August 18, 1935; Yellowstone Park, Wyoming, September 11, 1941; Beaver Mountain, Utah, July 10, 1942; Allen Canyon, Utah, August 25, 1938.

M. ludovicinae (Oestlund) on *Artemisia vulgaris* at Hubbard Ranch, Nevada, August 20, 1943; Craig, Montana, August 5, 1944; on *Artemisia tridentata* in Shoshone National Forest, Wyoming, September 11, 1941; on *A. ludovicianae,* Colfax, Washington, August 7, 1944.

Drosophila mallochi, nom. nov.

By O. Frota-Pessoa, Santa Teresa, Rio de Janeiro

During a bibliographic revision, I saw that *Drosophila lativittata* Malloch, 1924, is a preoccupied name and wrote to Professor J. R. Malloch about it. He kindly asked me to propose a new name, which is what I am doing in this note.

Drosophila mallochi nom. nov.

Drosophila lativittata Malloch, 1924 in Malloch & McAtee, 1924 Proc. Biol. Soc. Wash. 37: 36–37.
nec *Drosophila lativittata* Malloch, 1923 Proc. Linn. Soc. N. S. W. 48: 618.

D. mallochi is a North-American species, while *D. lativittata* Malloch, 1923, is an Australian one.

A Note on Hellgrammites in Eastern Tennessee

By MIKE WRIGHT, Tusculum College, Greeneville, Tennessee

Hellgrammites or larvae of the large and spectacular dobson fly (*Corydalis cornutus*) are found fairly frequently in the cool, fast flowing streams of eastern Tennessee, particularly in the mountainous section. They are locally known as "grampies" and are highly valued as bass or trout bait.

This observer has frequently found specimens while searching for dragonfly nymphs in such streams, usually under larger rocks. According to Comstock's *An Introduction to Entomology* (p. 287), these insects spend about three years in their larval stage, leaving the water to pupate under a stone or some other object on or near the bank of the stream. In view of this we wish to report the following interesting observation on the terrestrial wandering of these larvae.

On May 11 and 12, 1946, the writer with a party of students stayed at Kinzel Springs, about 25 miles northwest of Gatlinburg, Tennessee. This resort is located on Little River just outside the Smoky Mountain Reserve. At about 10:30 P.M. several students brought in a large hellgrammite from the roadway just outside the cottage. Further investigation produced two additional larvae, all walking along the same roadbed. The roadbed was some 200 to 300 feet from the river and raised about 15 to 20 feet above the water level of the river. In many places the river bank was gently sloped and contained abundant rocks and other debris suitable for pupation of hellgrammites. Little River was high, due to recent rains, and carried considerable silt from upstream cultivated fields, but suitable pupating areas were abundant.

We are unable to offer an explanation for this wandering, but note that no hellgrammites were found on land the next morning, although several were taken in the stream. In addition, one large larva was found inside a cottage located on the edge of the stream, but some 15 feet above the water level. The hellgrammite had crawled up the side of the cottage and through some opening into the bedroom, where it was found wandering about over the floor.

As larval measurements are not given in our available literature, the following dimensions of the two largest larvae are given herein: total length of body (a) 74 mm., (b) 71 mm.; width of head (a) 10.5 mm., (b) 9 mm.

Aedes tortilis (Theobald), a Mosquito New to the United States

By Arthur E. Staebler, S. A. Sanitarian (R) and William F. Buren, Asst. Sanitarian (R), Foreign Quarantine Division, U. S. Public Health Service

Aedes tortilis (Theobald) occurs in the Bahamas, Virgin Islands, and the Greater Antilles. So far as we are aware the species has never been taken in the United States, even on the Florida Keys. On August 28, 1945, a female specimen was captured in a light trap operated by Mr. J. H. Hause, Malaria Control in War Areas at Key West, Florida. As Key West is a port of entry for aircraft, this trap was set up with the cooperation of Mr. Hause by the writers for the purpose of checking on the possible implantation of exotic insects of Public Health interest.

Aedes tortilis has also been taken in the routine insect inspection of aircraft arriving at Miami, Florida, from quarantinable areas. A total of five dead females has been recovered as follows: September 27, 1944, on a plane from San Juan, Puerto Rico, via Guantanamo, Cuba (2 specimens); October 7, 1944, on a plane from Panama Canal Zone via Jamaica (1 specimen); August 20, 1945, on a plane from San Juan, Puerto Rico via Camaguey, Cuba (1 specimen); November 24, 1945, on a plane from Barranquilla, Colombia via Camaguey, Cuba (1 specimen).

There is a possibility that *Aedes tortilis* may have been recently introduced at Key West by aircraft.

The identification of the specimens has been confirmed by Dr. Alan Stone of the U. S. National Museum.

Notes and News in Entomology

Under this heading we present, from time to time, notes, news, and comments. Contributions from readers are earnestly solicited and will be acknowledged when used.

The Adams Collection of Odonata. Dr. Charles C. Adams, lately retired as Director of the New York State Museum, Albany, N. Y., has presented his collection of Odonata to the Academy of Natural Sciences of Philadelphia. The insects, about 3900 in number, representing at least 337 species, are mostly in paper envelopes. The localities of origin include Illinois (Dr. Adams' native State, in which he did much collecting around Bloomington); the upper waters of the Cumberland and Tennessee Rivers (gathered in the course of his investigations of the mollusk Io); Gotha, Florida (collected by Adolph Hempel); Phoenix, Arizona (from R. E. Kunze); Intervale, New Hampshire (collected by G. M. Allen); Orono, Maine (by F. L. Harvey); the Nilgiris, India (by a native collector); and many localities of the Old World as received in exchange from the well-known French student of the Odonata, René Martin (1846–1925). Many examples from Dr. Adams' collection are recorded in the Odonate section of the Biologia Centrali-Americana. Dr. Adams writes: "The collection was given to the Academy in recognition of Dr. Philip P. Calvert's outstanding contribution to our knowledge of Odonata and on account of his generous and friendly relations with all students of these insects." Dr. Calvert has been a Research Fellow in Entomology at the Academy for many years.

Personal

Dr. Donald T. Ries, formerly Park Naturalist at Starved Rock State Park, Utica, Illinois, has recently returned from active duty with the Sanitary Corps, U. S. Army. He has been appointed Assistant Professor of Biology at Illinois State Normal University, Normal, Illinois, beginning in September 1946.

Current Entomological Literature

COMPILED BY CHARLES HODGE IV, EDWIN T. MOUL, MAURICE E. PHILLIPS AND HENRY K. TOWNES JR.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the current or preceding year unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of Journals given at the end of the literature. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

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ANATOMY, PHYSIOLOGY, MEDICAL—Armstrong, T.—Differences in life history of codling moth on pear and apple. [15] 77: 231–333. **Avery, J. L.**—Parasitic infections among natives of the Samarai District, Papua, New Guinea. [25] 32: 25–29. **Berjot, E.**—Anomalous duration of pupal stage of butterflies. [37] 10: 225–226. **Boden-**

stein, D.—Investigation of the locus of action of DDT in flies (Drosophila). [9] 90: 148–157, ill., 1946. **Carlson, J. G.**—Protoplasmic viscosity changes in different regions of the grasshopper neuroblast during mitosis. [9] 90: 109–121, ill., 1946. **Cockayne, E. A.**—Peroneural Defect in Abraxas grossulariata, L. [21] 58: 45–46, ill. **Ilse, Dora.**—The color vision of insects. [34] 65: 68–82. **Lindberg, H.**—Morphological variations of stylopized cicadas. [28] 23: 144–156. **Marcus, H.**—Comparative study of mandibular articulation of ants and termites. [1] 2: 259–284. **Marcus, H.**—Respiration of ants. [1] 2: 307–320. **Marcus, H.**—Olfactory organs of ants. [1] 2: 441–445. **Palmer, E. D.**—Intestinal canthariasis due to Tenebrio molitor. [25] 32: 54–55. **Richards & Cutkomp.**—Correlation between the possession of a chitinous cuticle and sensitivity to DDT. [9] 90: 97–108, 1946. **Roeder & Weiant.**—The sight of action of DDT in the cockroach. [38] 103: 304–306. **Suomalainen, Eske.**—Beiträge zur zytologie der parthenogenetischen insekten. I Coleoptera. [5] Ser. A. 54: no. 7, 1–76, ill. **Waterhouse, D. F.**—Studies of the Physiology and Toxicology of blowflies. [7] Bul. 191: 1–39. **Wheeler, L. R.**—Hairs on the Bodies and Upper Wing Surfaces of Butterflies: A Probable Protection Against Cold. [20] 79: 80–87. **Williams, R. W. and H. W. Brown.**—Transmission of Litomosoides carinii, by tropical rat mite, Liponyssus bacoti. [38] 103: 224.

ARACHNIDA AND MYRIOPODA—Bequaert, J. C.—The ticks, or Ixodoidea, of the Northeastern U. S. and Eastern Canada. [18] 25: 73– (k). **Brennan, J. M.**—New genus and sp. of chigger, Chatia setosa. [25] 32: 132–135. **Bryant, E. B.**—Some new or little known southern spiders. [35] 52: 178–191 (*), ill. **Chamberlin, R. V. & Wilton Ivie.**—On several new American spiders. [14] 36: No. 13, 1–15, ill. **Cooley & Kohls.**—Genus Ixodes in North America. [Federal Security Agency. Nat. Inst. of Health Bull.] 184: 1–246, 1945, ill. **Ewing, H. E.**—Notes on the taxonomy of three genera of Trombiculid mites, with description of a new genus. [31] 59: 69–72, ill. **Keegan, H. L.**—Six new mites of the superfamily Parasitoidea. [46] 65: 69–77, ill. **Rapp, W. F., Jr.**—(See General.) **Schubart, O.**—Diplopoda of Pirassununga, Brazil. [1] 2: 321–440 (k*). **Strandtmann, R. W.**—Atricholaelops sigmodoni, new sp. of mite. [25] 32: 164–169.

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British Butterflies

The British Islands have a biota which is of extraordinary interest whether regarded from the aesthetic or purely scientific point of view. The flowers, the birds, the butterflies and moths, the snails, are extremely beautiful, and give much pleasure to those able to appreciate them. But at the same time there is perhaps no part of the world which illustrates so well the migrations and variations of species, the events taking place since the glacial period or periods, when most of the country was covered with ice. It was a happy thought to found a new series of books, under the title of The New Naturalist, to set forth the essence of all this, including the observed facts, and modern theories of genetics; to present the best results of scientific work in such a way that any intelligent person could understand. At the same time, the sense and enjoyment of beauty is well satisfied by exquisite colored plates.

With this ambitious purpose the problem naturally arose, how could men be found to write the books? They must not be mere compilers, they must know nature out-of-doors, and yet they must have understanding of theoretical matters sufficient to interpret the observations made in the field. At the same time they must be good writers. Whether these conditions can be met in the case of the numerous other volumes proposed, remains to be seen, but certainly the first author, Dr. E. B. Ford of the University of Oxford abundantly satisfies all these requirements. The book is so interesting and stimulating that one would like to discuss it at great length, but some idea of its contents can be got from the chapter headings. The History of British Butterfly Collecting. The Structure and Developments of Butterflies. The Senses and Colours of Butterflies. The Principles of Classification. Habits and Protective Devices. Relations with Other Insects. Distribution. Dispersal. Theoretical Genetics. Practical Genetics and Breeding. Genetic Interactions. Evolution. The Races and Subspecies of British Butterflies. The Origin of the British Butterfly Fauna. There are numerous maps showing distribution.

Long ago, I was called upon to assist Alfred Russel Wallace in the preparation of a new edition of his ISLAND LIFE. Wallace considered that there ought to be a number of races of British animals evolving in Pleistocene or Pliocene times. At that time there was a very strong prejudice against such an idea and as we now think of it, it seems extraordinary that we were so blind as to the actual facts, whether relating to mammals, birds or insects. Among the butterflies, striking abberations were prized by collectors, and given names, but the relatively inconspicuous differences between subspecies were overlooked. Thus the English race of the swallow-tail, *Papilio machaon,* is said by Ford to constitute a distinct subspecies which cannot be confused with any other. It is beautifully illustrated in the book, and at the same time the French race for comparison. But this British insect was named subsp. *britannicus* by Seitz, in a German work in quite modern times.

The price of the book is only 16 shillings, though it has 368 pages and very many illustrations. It is published by Collins, 14 St. James' Place, London.—T. D. A. COCKERELL.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

Wanted—Mosquitoes for determination, or exchange for S. E. specimens. Particularly desire larvae. H. R. Dodge, Box 1095, Macon, Ga.

Arctic Lepidoptera on hand, including Erebia, Oeneis and Brenthis. R. J. Fitch, Lloydminster, Sask., Canada.

Odonata—Will buy or exchange North and Central American species, both imagos and nymphs. Also will exchange other orders for Odonata. Carl Cook, Crail Hope, Kentucky.

I want to collect Rothschildia farbesi, agapema, galfina and io moths for interested persons. E. Frizzell, Route 4, San Benito, Texas.

Wanted—Information as to the existence and present location of a copy of Solodonikov, S. V. Contribution à l'étude de la faune et de la biologie des larves des Libellules du Donetz et de certains de ces affluents. [In Ukrainian.] Trav. Soc. Nat. Charkow 52: 249-268. 1929. [Quoted from Zool. Rec. 1936, Ins. p. 147, No. 3114.] P. P. Calvert, P. O. Box 14, Cheyney, Penna.

Wanted—Crane-flies (Tipulidae) of New Guinea, New Caledonia and Neighboring Islands, for revisional purposes. Also, names and addresses of individuals or institutions possessing any of these flies. Correspondence solicited. Chas. P. Alexander, Fernald Hall, Amherst, Mass.

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